

PATENT

Agent's Docket No. 15904-US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of)
)
PANUNTO, John P.)
)
Serial No: 10/660,533) Art Unit: 3653
)
Filed: 09/12/2003) Examiner: **MORRISON, Thomas A.**

For: **LARGE CAPACITY BOTTOM FEED DISPENSER**

March 31, 2006

Mail Stop Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
U.S. Patent and Trademark Office
Alexandria, Virginia 22313-1450

RESPONSE TO OFFICE ACTION DATED 01/03/2006

Sir:

In response to the Office Action mailed 01/03/2006, kindly amend the above-identified application as follows:

IN THE SPECIFICATION

Please replace paragraph [0054] with rewritten paragraph [0054] below:

[0054] Typically, the dispenser 10 dispenses individual media elements 50 down the discharge chute 24 to another conveyor, a transport box, tote, or otherwise. In any event, the receiver for the dispensed individual media elements 50 may be termed to be a box, and as such its ability to receive more individual media elements 50 may be determined by a box ready sensor 99, not shown. It will be understood, however, that whenever a box ready event occurs, operation of the transport conveyor will again begin, irrespective of the operating condition of the front conveyor 20.

IN THE CLAIMS

1. (cancelled)
2. (currently amended) The dispenser of claim 13 [[1]], wherein $V_F > V_R$, and $V_T \geq V_F$.
3. (original) The dispenser of claim 2, wherein said media storage bin is arranged vertically or is inclined rearwardly at an angle less than 30° from the vertical.
4. (original) The dispenser of claim 2, wherein each of said rear and front conveyors comprises at least two parallel conveyor belts.
5. (original) The dispenser of claim 2, wherein said transport conveyor comprises upper and lower conveyors each having at least two parallel conveyor belts arranged so that the distance between the upper conveyor and lower conveyor is sufficient to secure single media elements therebetween in driving relationship therewith.
6. (original) The dispenser of claim 2, wherein said media elements are chosen from the group consisting of: sheets of paper, pamphlets, booklets, brochures, catalogs, magazines, envelopes, CDs or DVDs in slip cases, CDs or DVDs in crystal cases or presentation cases, flyers, books, and, combinations thereof.
7. (cancelled)
8. (original) The dispenser of claim 2, wherein said first sensor operates to stop operation of said transport conveyor when it senses the presence of media thereat.
9. (currently amended) The dispenser of claim 8, further comprising a box ready sensor to sense when a receiver for media being discharged from said discharge chute is

capable of receiving more media, and which operates to start operation of said transport conveyor when the receiver is capable of receiving more media~~a box ready event occurs~~.

10. (original) The dispenser of claim 8, wherein whenever said front conveyor starts its operation, said transport conveyor also starts its operation.

11. (cancelled)

12. (original) The dispenser of claim 2, wherein said rear conveyor comprises a plurality of conveyor belts arranged lengthwise along said dispenser, each being driven at said first linear velocity V_R .

13. (new) A dispenser for dispensing flat media seriatim to a discharge end, comprising:

 a media storage bin for storing a stack of flat media elements, the bin having a bottom end;

 a driven rear conveyor extending under the bottom end of the media storage bin for carrying away flat media elements from the bottom of the stack in a shingled relationship wherein the flat media elements lie flat on the conveyor with the leading edge of one said media element overlying the trailing edge of a preceding said media element, the driven rear conveyor being driven intermittently at a first linear velocity V_R ;

 a coarse media separator comprising a first nip roller defining a nip with the rear conveyor, said first nip roller cooperating with the rear conveyor to feed said media elements off the bottom of the stack onto said rear conveyor in said shingled relationship;

 a first height adjustment mechanism for setting a first vertical spacing between the first nip roller and the rear conveyor to allow said media elements to pass through said nip in said shingled relationship;

 a driven front conveyor downstream of said rear conveyor for receiving the flat media elements from the rear conveyor, the driven front conveyor being driven intermittently at a second linear velocity V_F ;

a single media separator comprising a second nip roller cooperating with said driven front conveyor to define a nip to separate said shingled media elements received from the rear conveyor into single media elements;

a second height adjustment mechanism for setting a second vertical spacing between the second nip roller and the front conveyor to allow said media elements to pass through said nip one at a time as separated media elements;

a transport conveyor for carrying the single flat media elements from said front conveyor to said discharge end, the transport conveyor being driven intermittently at a third linear velocity V_T ; and

a first sensor responsive to the presence or absence of a media element at the discharge end to stop operation of the transport conveyor;

a second sensor responsive to the presence or absence of a media element on the transport conveyor to stop operation of the front conveyor; and

a third sensor responsive to the presence or absence of a media element at an input to the front conveyor to stop operation of the rear conveyor.

IN THE DRAWINGS

The attached sheet of drawings includes changes to Figure 3. This sheet replaces original Figure 3.

Remarks and Arguments:

Claims 1, 7 and 11 have been cancelled and claim 13 has been newly added as supported by the specification as filed. Claims 2 and 9 have been amended. Accordingly, claims 2 to 6, 8 to 10 and 12 to 13 remain for consideration in this application.

The drawings were objected to because of the reasons set forth in section 1 of the Office Action. In response, Figure 3 has been amended to remove reference character 22 pointing to the axle of the transport conveyor. Figure 3 has also been amended to label the location of the box ready sensor 99. In a related amendment, paragraph [0054] has been amended to identify the “box ready sensor” as --box ready sensor 99--. In view of these amendments, it is respectfully submitted that the drawings are now in proper form, and withdrawal of the objection to the drawings is requested.

The Examiner has objected to claims 1, 9 and 10 under 35 U.S.C. § 112, second paragraph. In response, claim 1 has been cancelled and a new independent claim 13 has been entered. Applicant submits that new claim 13 defines cooperative relationships between the recited elements. Claims 9 and 10 have been suitably amended; claim 9 has been amended to delete the term “box ready event”, and claim 10 has been reworded for improved clarity.

The Examiner has rejected claims 1-3 and 7-8 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,550,764 (Wilson et al.). Applicant respectfully traverses this rejection having regard to the new claims, for the reasons set out below.

The present invention relates to a bottom feed dispenser for dispensing flat media stored in a media bin to a discharge chute along a feed path. The dispenser can be used for any type of media as disclosed in paragraph [0026] of the present description. However, this dispenser is specifically designed to handle heavy items, such as catalogues. The weight of such items generally makes it very difficult to feed them singly off the bottom of a stack. Prior art attempts have generally resulted in multiple items being drawn off the stack together rather than singly. In accordance with the principles of the invention, rather than attempting to singulate the items in a first step, a first coarse separation is carried out, wherein the items are laid out on a conveyor in an overlapping relationship, and this is followed by a second separation wherein the overlapping items are separated into single elements.

The invention provides for control of the feed path with a simple mechanical arrangement. A driven rear conveyor extending under the bottom end of the media storage bin carries away flat media elements from the bottom of the stack in a flat shingled relationship, in which the leading edge of a media element overlies the trailing edge of a next adjacent media element. A coarse media separator comprising a first nip roller defining a nip with the rear conveyor cooperates with the rear conveyor to feed media elements off the bottom of the stack on said rear conveyor in a flat shingled relationship. A driven front conveyor downstream of the rear conveyor forwards said flat media elements as single elements in a non-shingled relationship. A single media separator downstream of the rear conveyor receives flat shingled media elements from the rear conveyor. Finally, a transport conveyor carries the single flat media elements from the front conveyor to the discharge end.

A first height adjustment mechanism sets a first vertical spacing between the first nip roller and the rear conveyor, and a second height adjustment mechanism sets a second vertical spacing between the second nip roller and the front conveyor.

In the present invention, the expression flat shingled relationship is defined to be one in which the leading edge of a media element overlies the trailing edge of a next adjacent media element.

The rear conveyor travels at a velocity V_R , the front conveyor travels at a velocity V_F , and the transport conveyor travels at a velocity V_T .

There are also three sensors along the feed path to provide signals to control the V_R , V_F and V_T , so that the media are passed along the feed path with adequate gaps therebetween.

Another advantage of the present invention defined by the claims is that the media elements stored in the media storage bin to be discharged therefrom at a faster rate.

It is submitted that Wilson et al. do not teach or suggest a dispenser as recited in new independent claim 13 for the reasons set out below.

As noted, an important difference between the present invention and Wilson et al. is that the present invention is designed to handle heavy items such as catalogues, as mentioned above. In order to ensure that the media elements are in a shingled relationship on the rear conveyor at the coarse media separator, the height of the nip roller is adjustable and settable at a set spacing above the rear conveyor. In the present

invention, a vertical space between each nip roller and its respective conveyor is deliberately set with the aid of the height adjustment mechanism.

Wilson et al.'s use of a deflector plate, namely guide mechanism 21, merely skews the stack of media elements to form a staggered arrangement. Although Wilson et al. refers to "shingling", the documents of Wilson et al. are not arranged in "a shingled relationship wherein the flat media elements lie flat on the conveyor with the leading edge of one said media element overlying the trailing edge of a preceding said media element", as defined by new claim 13. The flat shingled relationship of the present invention is achieved by the first nip roller that provides a positive feed of shingled media elements, which results in a positive partial separation of the catalogues.

Further, in the present invention, the shingled media elements are in a shingled relationship such that they are "flat" as recited in claim 13 on the rear conveyor. In contrast, in Wilson et al., as mentioned above, the first roll is merely presented with a skewed stack, which is not the same thing as the shingled media elements of the present invention.

In applying Wilson et al., the Examiner has relied on Figure 3 for illustrating the "shingling" relationship. However, Applicant submits that the documents illustrated in Figure 3 are not shingled in accordance with the definition ascribed by the present invention. The documents illustrated in Figure 3 are merely staggered and stacked in relation to one another, and they do not lie flat on the conveyor. In fact, Wilson et al. refers to the "stack" of mail throughout the patent.

Further, the "shingling" of the present invention is particularly facilitated by the driven rear conveyor and the first nip roller of the coarse separator working cooperatively "to feed said media elements off the bottom of the stack onto said rear conveyor in said shingled relationship", as defined in new claim 13. Applicant submits that in Wilson et al., the documents are not fed from the bin to the guide mechanism 21. In particular, Wilson et al. at column 4, line 64 to column 5, line 1, describes how the "driven belt 19, which makes contact with the bottom edge of lead mailpiece 13, also assists in moving lead mailpiece 13 downstream past a guide mechanism 21 and toward a first document singulator 23"

Therefore, Wilson et al. does not achieve a "shingling" relationship as defined by present claim 13.

There would be no motivation in Wilson et al. to create a gap because Wilson et al. is intended specifically for “controlling the timing and motion of documents in a document-handling machine, especially that of mailpieces in a mail-handling machine” (column 1, lines 9 – 11).

In contrast, as mentioned above, the present invention is designed to facilitate the handling of thick items such as catalogues, which specifically requires a gap between the nip roller and the conveyer. Claim 13 recites that a vertical spacing is set “between the first nip roller and the rear conveyor”. Applicant submits that a person skilled in the art would not use the teachings of Wilson et al. to introduce a space between the nip rollers and its conveyor. On the contrary Wilson shows the upper being urged against the conveyor. Therefore Wilson et al. does not teach or suggest this feature recited in claim 13.

Also, since there is no need, teaching or suggestion of a vertical spacing between the nip and conveyor in Wilson et al., Applicant submits that there is no “first height adjustment mechanism for setting a first vertical spacing between the first nip roller and the rear conveyor”, as recited in claim 13.

In the Office Action, the Examiner has argued that the singulators of Wilson et al. are vertically adjustable via spring 111 and 115. In response, Applicant submits that the Examiner has misunderstood the function of springs 111 and 115. These springs are used to press retard assembly 53 into contact with the conveyor. Column 5, lines 22 to 28 specifically recite that the springs serve “to resist lateral movement due to downstream travel of shingled mailpiece stack 43. The forces respectively exerted by feed assembly 49 on lead mailpiece 13 and retard assembly 53 on the remaining documents in the stack are sufficient to overcome the inter-document force between the lead mailpiece and the next successive document in the stack.” This in turn is used to ensure that “only one document at a time leaves first singulator 23” (column 5, line30). The springs do not allow the upper roller to be set at a preset vertical spacing from the conveyor.

It is well established law that “a claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently, described in single prior art reference”. Verdegaal Bros. vs. Union Oil of California 2USPQ2d 1051.

Therefore, Applicant submits that Wilson et al. do not recite each element as arranged in new independent claim 13, and thus that claim 13 is not anticipated by Wilson et al.

Dependent claims 2, 3, and 8 depend either directly or indirectly from independent claim 13, and include all of the limitations of its respective parent claim. Therefore, the dependent claims are believed to be distinguishable over the cited references for at least the same reasons as those given to the respective parent claims.

With respect to the Examiner's rejection to claim 2, the Examiner has equated the front conveyor of the present invention with belt 42 of Wilson et al. on page 6 of the Office Action. However, the Examiner has also equated the front conveyor of the present invention with aligner 31 of Wilson et al. on page 5 of the Office Action. Applicant submits that the front conveyor of the present invention cannot be equated to both aligner 31 and belt 42 of Wilson et al.

The Examiner has also equated the transport conveyor of the present invention to feed assembly 50 of the second singulator 39 of Wilson et al. It is submitted that the transport conveyor of the present invention serves to carry away media elements from the second single separator; the feed assembly 50 of Wilson et al. serves to feed documents to the second singulator 50.

The Examiner has rejected claims 4, 6 and 12 under 35 U.S.C. § 103(a) as being obvious in view of Wilson et al. Applicant respectfully traverses this rejection having regard to the new claims, for the reasons set out below.

Dependent claims 4, 6, and 12 depend either directly or indirectly from independent claim 13, and include all of the limitations of its respective parent claim. Therefore, dependent claims 4, 6, and 12 are believed to be distinguishable over the cited references for at least the same reasons as those given to the respective parent claims.

With respect to claims 4 and 12, the Examiner has argued that "the front conveyor comprises at least two parallel conveyor belts (33 and 35)". However, is submitted that the front conveyor traveling at velocity VF of the present invention serves to receive the media elements from the second single separator; therefore the front conveyor of the present invention cannot be equated with driven belt structures 33, 35 of Wilson et al., which receives the documents from singulator 39.

The Examiner has also made the unsubstantiated comment that a person skilled in the art would find it obvious to substitute a plurality of parallel belts for one wide belt. Applicant respectfully traverses this and respectfully requests that the Examiner cite art in support of this position.

With respect to claim 6, the Examiner has made the unsubstantiated comment that a person skilled in the art would find it obvious to convey any suitable media on the Wilson et al. apparatus. The Examiner has cited *In re Leshin* in support of this position. However, it is respectfully submitted that *In re Leshin* is inapplicable to this situation. *In re Leshin* was concerned with the use of a plastic material chosen for its properties known to be suitable for its intended purpose. Wilson is intended for singulating documents, such as mail pieces, which are generally easier to singulate than heavy items, such as catalogues, which because of their weight are very difficult to singulate off the bottom of a stack. One skilled in the art attempting to use Wilson for singulating heavy material, such as catalogues, would encounter precisely the problems that the invention seeks to overcome, namely that because of the weight of the stack of documents any separator attempting to singulate the documents off the bottom of the stack without the claimed means would tend to jam or pass more than one item.

In view of the above, Applicant submits that claims 2 to 13 pending in this application are believed to be distinguishable over the cited reference and should be allowed.

Accordingly, Applicant respectfully requests a timely Notice of Allowance be issued in this case.

Respectfully submitted,



Richard J. Mitchell
Registration No. 34,519
Agent of Record

MARKS & CLERK

P. O. Box 957, Station B,
Ottawa, Ontario Canada K1P 5S7
Tel: (613) 236-9561

REPLACEMENT SHEET
USSN10/660,533

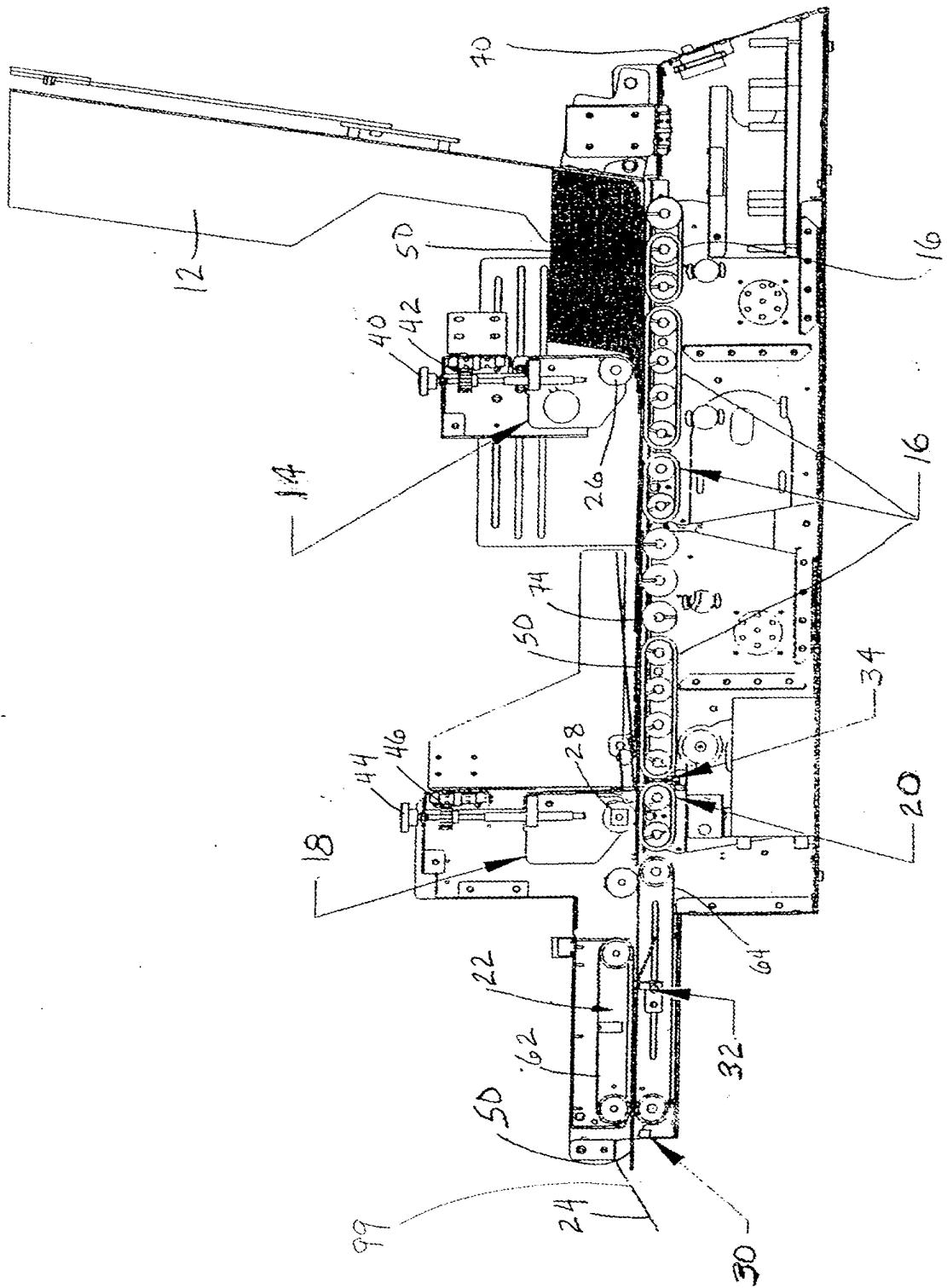


Fig. 3